

**Development of the Gulf of Mexico Coastal Ocean Observing
System (GCOOS) and its Regional Association (GCOOS-RA):
Phase II
NA05NOS4731167**

**Progress Report
June 1, 2007 - November 30, 2007**

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on behalf of the
GCOOS Regional Association

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1.0 Project Summary

1.1 Goals There are two overall goals of this project.

Goal 1: To establish a Regional Association (RA) to develop, support, and enhance the Gulf of Mexico Coastal Ocean Observing System (GCOOS) and be its representative within the National Federation of Regional Associations (NFRA). This includes certification of the RA. This goal is quite specific and will be attained before this three-year project ends.

Goal 2: To assist in the development of the GCOOS as a regional coastal ocean observing system (RCOOS) contributing to the U.S. Integrated Ocean Observing System (IOOS). This is the more general goal; these RCOOSs never will be complete, so development still will be ongoing when this project ends. However, this project's activities, which are enhancements of efforts that the principal investigator and other key personnel have been engaged in since late 2000, will make significant improvements in the organization, integration, planning and execution of GCOOS.

1.2 Objectives The objectives are listed here as contributing principally either to Goal 1 or 2. However, many objectives contribute to both goals.

1.2.1 Objectives contributing primarily to Goal 1

- 1.2.1-1 Ratify a governance structure for the GCOOS-RA by open membership of interested parties. A Memorandum of Agreement was ratified as the initial structure 01/2005.
- 1.2.1-2 Implement the GCOOS-RA structure by electing or appointing officers and members of all organizational structures. Board formed 06/2005; Councils/committees 04/2006.
- 1.2.1-3 Select GCOOS representatives to the NFRA. Selected in August 2005.
- 1.2.1-4 Prepare a GCOOS Business Plan. Draft available for comment. The plan is being revised based on comments received to date. As steps in this process, we began work on version 1 of a GCOOS Conceptual Design, and a first draft of an Operating Systems Plan was prepared in November 2007.
- 1.2.1-5 Obtain certification of the GCOOS-RA by appropriate body of IOOS.
- 1.2.1-6 Strengthen or develop linkages between GCOOS and other RCOOSs (especially SECOORA and CaRA), federal agencies supporting national backbone observations in the Gulf of Mexico, and the Gulf coastal observing programs of Mexico and Cuba.

1.2.2 Objectives contributing primarily to Goal 2

- 1.2.2-1 Form the GCOOS Education and Outreach Council, which will prepare an education and outreach plan for GCOOS. Implement the initial phases of that plan with resources provided by this project. Council was formed in April 2006.
- 1.2.2-2 Broaden the number of users and better identify current and potential user requirements.
- 1.2.2-3 Establish data standards and protocols for GCOOS adhering to the DMAC Plan.
- 1.2.2-4 Continue integration of real-time data collection and of archived data in the region.
- 1.2.2-5 Entrain into the system additional operators of extant observing system elements, with focus on elements sponsored by state or local government or the private sector.

1.3 Tasks The project has six tasks with activities designed to meet the foregoing objectives:

- 1.3.1 Develop the GCOOS-RA,
- 1.3.2 Entrain users and develop user requirements,
- 1.3.3 Develop the education and outreach component,
- 1.3.4 Develop a GCOOS Business Plan—a blueprint for the future,
- 1.3.5 Assist with integrating, sustaining, enhancing, and monitoring the GCOOS, and
- 1.3.6 Develop linkages to other RAs, programs, agencies, and entities with similar interests.

2.0 Progress and Accomplishments

During this semiannual period of performance, numerous activities were undertaken to improve the GCOOS-RA organizational structure and advance planning and implementation of the RA and the GCOOS itself. A primary focus was on engaging the stakeholder communities. Without significant funding available for implementation of pilot projects, observational components, or data management activities, the GCOOS-RA nevertheless was able to make significant strides forward in development of the RA and interest by stakeholders in the regional ocean observing system. It should be noted that the GCOOS-RA prepared four proposals in response to the FY08 call for proposals by the Coastal Services Center (CSC) to strengthen regional coastal ocean observing systems. In addition we prepared one proposal for the continued maintenance and development of the GCOOS-RA itself. Activities and accomplishments for RA development are detailed in the two sub-sections to follow.

2.1 RA Organizational Structure

The Memorandum of Agreement (MoA), effective in January 2005 with minor revisions in October 2005 and January 2006, is the instrument that governs the GCOOS-RA. The membership of the GCOOS-RA consists of Parties to the MoA within three classes: voting, non-voting (individuals), and associate (non-U.S. entities). There were no changes to the Board of Directors or to the Office staff. Council and Committee membership continues to evolve as the Board identifies needs. Our GCOOS Education and Outreach Coordinator, hired on April 16, 2007 resigned for personal reasons in October 2007; a search for a replacement is underway.

Selected Specific Activities

- The Education and Outreach Council (EOC) recommended as highest priority hiring a GCOOS Education and Outreach Coordinator. The leadership of that committee prepared a position description, a work plan and a proposal for so doing. A subcontract to Dr. Sharon Walker at the University of Southern Mississippi (USM) in Ocean Springs, MS, has been initiated to support the activities of a GCOOS Education and Outreach Coordinator. This will put the Education and Outreach Coordinators for GCOOS, SECOORA, the Gulf of Mexico Alliance, and the Central Gulf Ocean Observing System in proximity to each other and directed by a core group that should result in close coordination and synergism.
- The EOC met 18 June 2007 at Spanish Fort, AL. Jessica Kastler took over the Chair from Mike Spranger, who takes on the role of Past Chair, and Margaret Sedlecky was elected Chair Elect. Members of the Environmental Education Network (EEN) of the Gulf of

Mexico Alliance also attended the meeting, and EOC members attended the EEN meeting on the 19th and 20th. This provided for coordination of activities of the two groups. The minutes from the meeting have been posted to the GCOOS web site.

- Efforts to expand the membership in the GCOOS-RA through work of the Membership Committee, Board members, and GCOOS Office staff have continued. Parties to the MoA now number seventy-three.
- The Observing System Committee (OSC), Products and Services Committee (PSC), and Data Management and Communications Committee (DMACC) met on 27-29 November 2007 in New Orleans, LA. The chairs of these committees are Stephan Howden (OSC), Rost Parsons (PSC newly elected), and Ed Kearns (DMACC). The minutes from this meeting will be posted to the GCOOS web in early 2008.
- At the September 2007 meeting of the GCOOS Board of Directors, Worth Nowlin was elected Chair of the Board.

2.2 Planning and Implementation

We continue to work toward a reasonably complete GCOOS Business Plan. Drafts have been posted to the GCOOS web for comments and commented on by the Board and Councils/Committees. All comments are being considered as the draft is revised. Particular focus will be placed on how to plan around the substantial delay in expected federal funding levels. Included in the Business Plan will be reference to the GCOOS Observing System Plan, a first draft of which was prepared in November 2007 by the Chair of the Observing System Committee. The Observing System Plan addresses observing system design for the region. The Data Management and Communications Committee has considered data management issues, and, working with the Operating System Committee, the Office staff and the Board, has prepared proposals for standardization and completion of GCOOS data nodes and development of a data portal as the first phase of a regional operations center. An outcome of the October 2007 IOOS Regional Coordination Workshop was the development of a DMAC Plan template to be used by the Regional Associations for the DMAC part of their Business Plans. This was discussed by the DMACC members and the template will be used as the GCOOS DMAC Plan is developed.

The priorities of the GCOOS regional observing system are being identified and refined through sector specific workshops. Three were held in previous reporting periods (for the managers monitoring harmful algal blooms, for the oil and gas and related sectors, and for managers and planners dealing with storm surge and inundation); the results of those workshops can be found on the GCOOS web. A fourth (toward the development of a Harmful Algal Bloom Integrated Observing System (HABIOS) Plan for the Gulf of Mexico) was held 14-16 November 2007 in New Orleans, LA. Other activities focused on development of additional sector specific workshops to be held in the future and on engaging the fisheries sector through follow-up activities to earlier meetings with the regional fisheries groups (Gulf of Mexico Fishery Management Council and Gulf States Marine Fisheries Commission).

During this period we began work on a Conceptual Design for GCOOS, with Version 1 targeted for submittal, by the National Federation of Regional Associations, to the NOAA IOOS Program Office in mid-December. This will be updated at least annually and should prove very useful when decisions must be made regarding selection of projects for potential funding.

Selected Specific Activities

- GCOOS representatives participated in near monthly telephone calls with representatives of other RAs, Ocean.US, and federal representatives. They also participated in numerous NFRA business and informational teleconferences. This has maintained increasingly better communication between the RAs.
- From July through November of 2007, the GCOOS Board of Directors participated in six telephone discussions regarding the development and approval of proposals in response to the FY2008 Call for Proposals from the NOAA CSC. The process followed for identification of projects to propose is posted to the GCOOS web site. Five Letters of Intent were submitted. The project entitled Migrating Gulf of Mexico Coastal Ocean Observing System (GCOOS) Data to Application, which was to conduct a detailed gap analysis, was not proposed under the call in order to allow better definition of the tasks. Projects proposed to NOAA CSC were (1) GCOOS-RA: Integration and Deployment of a Portable Meteorological Sensor Package Off Oil Industry Platforms in the Gulf of Mexico, (2) GCOOS-RA Pilot Project: Proof of Concept for a 3-D Operational Ocean Circulation Forecast Model of the Gulf of Mexico, (3) Developing a Sustained and Integrated HF Radar Network in the Gulf of Mexico, and (4) Maintenance and Enhancement of the GCOOS Data Portal; Building Toward a Regional Operations Center.
- The GCOOS Board of Directors instituted a formal conflict of interest (COI) statement for Board members and others needing a measure of protection. The Board provided comments to Ann Jochens on a draft COI procedure at its August 2006 meeting. She incorporated those comments into a final COI procedure, and presented it to the Board at its March 2007 meeting. The Board then adopted the procedure, which is included in the meeting report that is posted to the GCOOS web. Board members are following the procedure by signing the COI.
- The GCOOS Board held its semi-annual meeting in Houston, TX, on September 5-6, 2007. The Chairs of the GCOOS Committees and Councils were also invited to this meeting, and representatives for each were present. Also present was Steven Wolfe of the Florida Department of Environmental Protection, who was attending on behalf of the Gulf of Mexico Alliance.
- A draft GCOOS Communication Plan was presented to and reviewed by the Board at its March 2007 meeting. It was revised and discussed at the September 2007 Board meeting. Further Board comments will be used in its finalization.
- At its June 2007 meeting, the EOC identified the development of the GCOOS Education and Outreach Strategic Plan as a major task for completion. A draft plan was prepared by a

small working group. It presently is being circulated to all EOC members for comments. It will then be provided to the Board for review and approval.

- The November 2007 meeting of the OSC, PSC, and DMACC, the members met both in plenary session to coordinate inter-committee efforts and separately to work on specific projects. Action plans for each committee were updated during the separate meetings. A synthesis of priority goals and objectives was developed during the plenary sessions.
- In October 2007, Cort Cooper and Worth Nowlin visited representatives of NOAA (NOS, the IOOS Project Office, and NWS) and MMS in two separate meetings in the Washington, D.C., area to describe a pilot project to design a proven 3-D ocean circulation model for the Gulf of Mexico for which the petroleum industry has committed \$1,000,000 beginning in 2008. We sought financial and modeling support from those agencies. In November 2007, Cort Cooper and Chris Mooers visited with representatives of Navy (NRL, NAVOCEANO, and CNMOC) at Stennis Space Center, MS, and the MMS in New Orleans with the same objectives.
- The GCOOS Office continues to refine its list serve of stakeholders. They receive pertinent information regarding system developments via email. This list serve also is used to solicit opinion and inputs.

2.3 Stakeholder Engagement

Stakeholder engagement for the reporting period has mainly been through meetings with Gulf of Mexico Alliance groups, working with NOAA and others to develop a plan for monitoring hypoxia in the Gulf, information emails to the GCOOS list serve, a workshop to develop a HABIOS Plan for the Gulf, planning of focused sector specific workshops, and presentations on GCOOS in various forums.

Selected Specific Activities

- The GCOOS web site (<http://www.gcoos.org>) is the major source of information regarding the GCOOS system of systems and development of a certified Regional Association (GCOOS-RA). It continues to undergo revision and improvement.
- Through July 2007, Ray Toll, then Chair of the GCOOS Board of Directors, was a member of the ORRAP and IWGOO. Through October 2007, he also served on the NFRA Executive Committee, participating in numerous teleconferences. He has met with and assisted NOAA IOOS Program Office personnel.
- During 26-28 June 2007 Ann Jochens and Worth Nowlin attended a MMS Meeting on the Physical Oceanography of the Gulf of Mexico in New Orleans, LA. They represented GCOOS. Others involved with GCOOS also attended this meeting as representatives of their companies or institutions.

- On 22-23 October 2007, Ann Jochens and Matthew Howard attended the SEACOOS Workshop in St. Petersburg, FL. This workshop reviewed the SEACOOS project as a whole and focused on "lessons learned" for both RCOOS development and information/data management.
- On 23-25 October 2007, Ann Jochens, Bart Bibler, Matthew Howard, and Worth Nowlin participated for the GCOOS-RA in the Regional IOOS Workshop held in St. Petersburg, FL. Howard participated in preparation of the DMAC part of the Workshop and the associated materials. He also led several break-out sessions in the DMAC track of the workshop and reported results out to the plenary session. The others participated in the Conceptual Design track of the workshop.
- On the evening of 24 October 2007, Ann Jochens and Worth Nowlin attended the semiannual meeting of the NFRA in St. Petersburg, FL., as substitutes for Ray Toll and Buzz Martin, the regular GCOOS representatives to the NFRA.
- On 14-16 November 2007, a workshop to further development of a Harmful Algal Bloom Integrated Observing System Plan for the Gulf of Mexico was held in New Orleans, LA. This workshop was planned by a steering committee lead by Bart Bibler, Chair of the GCOOS Task Team on Public Health. It was jointly sponsored by the GCOOS-RA and the Gulf of Mexico Alliance. The Alliance for Coastal Technology assisted through its personnel in the organization and implementation of this workshop. The workshop report is under preparation and may soon be viewed on the GCOOS web site.
- Ann Jochens is a member of the Steering Committee for the NOAA Gulf of Mexico Hypoxia Monitoring Implementation Plan. In August 2007, she provided input on a Matrix of System Requirements to Alan Lewitus, NOAA lead. She has participated in numerous teleconferences regarding the establishment of a Stakeholders Committee to report to the Steering Committee and has prepared the Terms of Reference and reviewed materials that will be posted by NOAA to an associated web site.
- On 5-7 February 2007, Ann Jochens attended the ACT-sponsored meeting "Towed Underwater Vehicles as Platforms for Mapping of Coastal Features and Processes" in Monterey, CA. As one of several representatives of regional associations, she contributed to providing the perspective of IOOS and the development of regional associations. She was the discussion leader of one of the break-out sessions. The workshop report is now available on the ACT web site.
- GCOOS Board members Don Roman and Ray Toll participated in the 3rd IOOS Implementation Conference on Maritime Security on 24-27 September 2007 in Washington, D.C.
- In October 2007, Ray Toll and Don Roman had separate meetings with Jack Dunnigan of NOAA. At these meetings, they discussed GCOOS activities. Also discussed was the relationship between GCOOS and the Gulf of Mexico Alliance.

- On behalf of the GCOOS Board of Directors, Ray Toll sent Bryon Griffith, Director, Gulf of Mexico Program, EPA, a letter on 4 June 2007 that discussed the relationship between GCOOS and the Gulf of Mexico Alliance. It pointed out commonalities and differences and identified a number of areas in which collaborations between the two groups were already underway.
- Ann Jochens participated in the Gulf of Mexico Alliance “Governors’ Action Plan Implementation and Integration Workshop” held 10-12 July 2007 in St. Petersburg, FL. She presented a talk 10 July in a plenary session on the collaborations of GCOOS with GOMA and participated in the technical workshops on Monitoring Parameters Standardization and Understanding Nutrient Dynamics and Effects in Gulf of Mexico Coastal Ecosystems. She participates in the teleconferences of the Gulf of Mexico Alliance (GOMA) Nutrient and Water Quality Teams and is assisting with a Nutrient Sources, Fate & Transport Study Workshop planned by GOMA for early 2008.
- Board members Mike Spranger, Sharon Walker, and Nancy Rabalais also participated in the July GOMA Workshop, attending the coastal resiliency, education, and/or nutrients/water quality portions of the workshop.
- Ann Jochens participated in the 31st Annual Conference of the Association of State Floodplain Managers held on 3-8 June 2007 in Norfolk, VA. She participated in the meeting of the Coastal Issues Committee, of which she is a member, and discussed IOOS and GCOOS with the Committee. She gave a talk on “Gulf of Mexico Coastal Ocean Observing System: Providing Data and Products for Users of the Coastal Environment” on 5 June at the “Going Coastal: Using Technology to Assess Coastal Risk” session and provided an associated paper for the proceedings.
- Planning is proceeding for a GCOOS Workshop for representatives of the maritime transportation industry to determine their requirements. Transportation elements to be invited to participate include representatives from tankers, container ships, cruise ships, shipping agents, port authorities, pilots, LNG carriers, intercoastal waterway commercial traffic, and commercial transportation of people.
- Planning has begun for a GCOOS workshop for urban planners and developers to determine their requirements.

3.0 Scope of Work

Most major activities planned for the reporting period were conducted. However, certification was not requested because the process is not yet in place with any federal entity to do so. The GCOOS-RA generally is on track for activities planned for the next funding period, except those which require the expected IOOS funding enhancements to the regions that are not available due to the present federal funding crisis. Within the limits of the federal funding constraints, the priorities for the next funding period are:

- Initiate the activities to improve GCOOS data management and integrate the system as described in the two proposals to be funded near the beginning of 2008 by the NOAA CSC.
- Finalize version 1 of the GCOOS Observing System Plan
- Finalize version 1 of the GCOOS Conceptual Design.
- Prepare the 2008 version of the GCOOS Business Plan.
- Hire a new Education and Outreach Coordinator.
- Obtain limited insurance for Board members and attendees at GCOOS meetings—*this may require some re-programming of funds*. Quotes are expected in early 2008.
- Complete planning for and conduct the focused stakeholder workshops to identify needs and priorities for the marine transportation sector. Complete planning for the urban planners/developers workshop.
- Initiate planning for a stakeholder workshop for the recreational boating sector.
- Continue with identification of needed measurements and products for the fishing communities. GCOOS representatives will meet with personnel from NOAA's Southeast Fisheries Science Center for this purpose.
- Work with Gulf of Mexico Alliance, Mexican colleagues, and others to complete Version 1 of the Harmful Algal Bloom Integrated Observing System Plan for the Gulf of Mexico. This will include cost estimates.
- Continue with identification of needed measurements and products for the emergency responders and planners in storm surge and inundation events through (1) follow-up on results of the workshop and (2) engagement of the Coastal Issues Committee of the Association of State Floodplain Managers.
- Continue to develop prospecti for GCOOS Pilot Projects and identify and obtain funding for them as feasible.
- Begin implementation of the GCOOS Communication Plan.
- Continue efforts to better integrate GCOOS activities with those of CaRA and Mexico.
- Continue participation in the nutrients and water quality issue team activities, as well as those of the coastal resiliency working group. Participate with GOMA in collaborative proposals, and coordinate GCOOS activities with other activities of the Gulf of Mexico Alliance.

- Continue development of linkages between the GCOOS Education and Outreach Council and the education/outreach components of other groups, such as the Gulf of Mexico Alliance and various NOAA units.
- Attempt to energize our three Committees: Operating Systems, Products and Services, and DMAC. Each has an Action Plan. *The difficulty is the lack of adequate funding to carry out the recommended activities.*
- Complete development of an Education and Outreach Strategic Plan.
- Continue engagement of the U.S. Coast Guard in our region.
- Increase membership in the GCOOS-RA.

4.0 Leadership Personnel

No changes in key scientific or management personnel related to the GCOOS Office are anticipated. Worth Nowlin continues as principal investigator. Dr. Ann E. Jochens continues as the GCOOS Regional Coordinator, Dr. Matthew K. Howard as the regional DMAC Coordinator, and Susan Martin as the administrative assistant in the GCOOS Office.

Parties to the GCOOS Memorandum of Agreement may elect new members to the Board of Directors to replace retiring members. The Board can change the membership of GCOOS Councils or Committees as it deems necessary. The present composition of the Board, Councils, and Committees is posted on the GCOOS web site.

5.0 Budget Analysis

Budget expenditures to date have been close to anticipated or planned budgets. One exception is that we spent somewhat less than anticipated in salaries during year one so that we had some monies that we transferred to the category of subcontracts in order to increase the amount contributed to education and outreach activities via subcontracts. We will need to subcontract additional monies to the University of Southern Mississippi for the second year of activities as recommended by the GCOOS Education and Outreach Council. We anticipate these will be obtained from salaries or travel from years two and three.

Financial reports are up to date, with the most recent being submitted to NOAA on 30 September 2007 covering the period 1 April 2007 to 30 September 2007; NOAA accepted it on 5 October 2007.